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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------------|------------------|
| 10/816,966 | 04/02/2004 | Yoshitsugu Morita | 501558.20015 | 1690 |
| 26418 | 7590 | 05/24/2007 | | |
| REED SMITH, LLP ATTN: PATENT RECORDS DEPARTMENT 599 LEXINGTON AVENUE, 29TH FLOOR NEW YORK, NY 10022-7650 | | | EXAMINER FIDLER, SHELBY LEE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2861 | |
| | | | MAIL DATE | DELIVERY MODE |
| | | | 05/24/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/816,966

Applicant(s)

MORITA, YOSHITSUGU

Examiner

Shelby Fidler

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2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 25-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 12-24 is/are rejected.
- 7) ☒ Claim(s) 3,10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Responsive Office Action

This Office Action is responsive to amendments/remarks filed 3/5/2007.

Claim Objections

Claim 22 is objected to because of the following informalities: please change the recitation of "ink package" on line 4 of the claim to "ink cartridge" to correct a minor antecedent basis problem. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-6, 13-14, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugata (US 6874878 B2) in view of Perez et al. (US 6074050).

Regarding claim 1:

Sugata discloses an ink cartridge comprising:

an ink accommodating bag (pack 352) in which ink is accommodated (col. 8, lines 19-20, 50-56) and which is formed of a first flexible sheet (col. 5, lines 35-37);

an outer bag (pack 351) which is formed of a second flexible sheet (col. 5, lines 49-52) and which encloses the ink accommodating bag such that a first space is defined by and between the ink accommodating bag and the outer bag (Fig. 7);

an ink delivering member (pipes 351a and 352a in Fig. 7);

a rigid casing (case 358) which encloses the outer bag and the ink accommodating bag such that a second space is defined by and between the outer bag and the rigid casing and which holds the ink delivering member (Fig. 7); and

wherein the ink delivering member further includes an ink outlet passage (pipe 352a) through which the ink in the ink accommodating bag is delivered to an exterior of the ink cartridge (col. 8, lines 27-31) and a communication passage (pipe 351a) through which the first space is held in communication with the exterior of the ink cartridge (col. 8, lines 27-31, 50-56).

Sugata does not expressly disclose an ink delivering member that includes a fixing portion to which the outer bag is fixed at an opening thereof and an extending portion which is formed adjacent to the fixing portion so as to extend toward an inside of the outer bag in a first direction of the fixing portion and to which the ink accommodating bag is fixed at an opening thereof.

However, Perez et al. disclose an ink delivering member (chassis 58) that includes a fixing portion (e.g. vessel sealing surface 66) and an extending portion (bag sealing surface 64) which is formed adjacent to the fixing portion so as to extend toward an inside of the outer bag in a first direction of the fixing portion (Fig. 4A) and to which the ink accommodating bag is fixed at an opening thereof (col. 4, lines 13-15 and Fig. 3A).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize an ink delivering member with a fixing portion to which the outer bag is fixed and

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an extending portion, such as taught by Perez et al., into the invention of Sugata. The motivation for doing so, as taught by Perez et al., is to provide fluid communication between the fluid outlet and the collapsible reservoir (col. 4, lines 4-6).

Regarding claim 4:

Perez et al. also disclose that the fixing portion (66) has a cross sectional area larger than a cross sectional area of the extending portion (64), where the cross sectional areas of the fixing portion and the extending portion are taken along respective planes perpendicular to the first direction of the fixing portion (Fig. 4A).

Regarding claim 5:

Perez et al. also disclose that the fixing portion (66) has a circular shape in cross section taken along a plane perpendicular to the first direction of the fixing portion (Fig. 4A).

Regarding claim 6:

Sugata also discloses that the outer bag (351) includes a pair of walls which are opposed to each other in a second direction perpendicular to the first direction of the fixing portion (col. 5, lines 45-48 and Figs. 3 and 7).

Regarding claim 13:

Sugata also discloses that the communication passage (351a) is formed on one of opposite sides of a plane (the plane of hatched region in Fig. 3) of the fixing portion, the plane including a connected surface at which the pair of walls of the outer bag is connected (Figs. 3 and 7).

Regarding claim 14:

Sugata also discloses that the communication passage (351a) is formed on both of opposite sides of a plane (the plane of hatched region in Fig. 3) of the fixing portion so as to

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extend in series, the plane including a connected surface at which the pair of walls of the outer bag is connected (Figs. 3 and 7).

Regarding claim 16:

Sugata also discloses that each of the first and second flexible sheets is provided by a material which substantially inhibits gases or vapors from permeating therethrough (col. 5, lines 35-37, 49-52).

Regarding claim 17:

Sugata also discloses that the first and second flexible sheets are made of vinyl (col. 5, lines 35-37, 49-52); and Perez et al. also disclose that the ink delivering member is more rigid than the ink bag (col. 4, lines 16-27 shows an O-ring placed between the pressure vessel and chassis, which requires these elements to be highly rigid materials so that the O-ring obtains a proper seal); therefore, the combination discloses an ink delivering member that is more rigid than the first and second flexible sheets.

Regarding claim 18:

Sugata also discloses that the ink delivering member further includes a hollow protruding portion (pipe 351a) which protrudes so as to extend in a direction away from the outer bag (Fig. 7) and which has an inner passage formed therethrough (col. 8, lines 25-27, 50-56), the communication passage communicating at one of opposite ends thereof with the first space defined by an between the ink accommodating bag and outer bag, and at the other of the opposite ends with the inner passage of the hollow protruding portion (col. 8, lines 25-27, 50-56 and Fig. 7).

Regarding claim 19:

Perez et al. also disclose that the fixing portion (66) has a connecting passage that connects the other of the opposite ends of the communication passage (the section of gas inlet 26 corresponding to vessel sealing surface 66) and one of opposite ends of the inner passage of the hollow protruding portion which is located on the side nearer to the fixing portion (Fig. 3A).

Regarding claim 20:

Perez et al. also disclose that the connecting passage includes a first portion which extends in the first direction of the fixing portion, and a second portion which extends from the first portion in a direction intersecting the first direction (Fig. 3A).

Regarding claim 21:

Perez et al. also disclose that the ink delivering member (58) further includes a cylindrical portion (36) which is formed adjacent to the fixing portion so as to extend therefrom in the direction away from the outer bag (Fig. 3A), the ink outlet passage being formed through the cylindrical portion (Fig. 3A), the fixing portion (Fig. 3A), and the extending portion (Fig. 3A), wherein one of opposite openings of the cylindrical portion is remote from the fixing portion, and one of opposite ends of the hollow protruding portion is remote from the fixing portion being located on a same plane (Fig. 3A).

Regarding claim 22:

Sugata also discloses that the ink cartridge is removably mounted on a main portion (ink reservoir unit 16) of an ink-jet recording apparatus (ink jet printer 1) which includes an ink-jet printing head (printing head 11), an ink supply passage (conduit 19) for supplying the ink delivered from the ink cartridge to the ink-jet printing head (col. 4, lines 57-65), a positive pressure generating source (air feed unit 17) for generating positively pressurized air (compressed air), and a positively pressurized air delivering passage through which the

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positively pressurized air generated by the positive pressure generating source is delivered (obvious to col. 5, lines 8-12), the ink cartridge being constructed to be removably mounted on the main portion such that the ink outlet passage (352a) of the ink cartridge is connected to the ink supply passage of the main portion while the communication passage (351a) of the ink cartridge is connected to the positively pressurized air delivering passage (col. 8, lines 19-33, 50-56 and Fig. 1).

Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugata as modified by Perez et al., as applied to claim 1 above, and further in view of Dowell et al. (US 6508545 B2).

Regarding claim 2:

Sugata as modified by Perez et al. also disclose that the communication passage (gas inlet 26) is formed at least in a state in which the outer bag is fixed to the fixing portion (see rejection of claim 1), the fixing portion having at least one seal portion (O-ring 68) formed on an outer surface thereof that continuously extends throughout a periphery of the fixing portion (Fig. 3A).

Sugata as modified by Perez et al. do not expressly disclose that the communication passage includes a portion that extends in a direction that intersects the first direction of the fixing portion.

However, Dowell et al. disclose an ink delivering member (fluid interconnect plate 34) that has a communication passage (labyrinth 46) that includes a portion extending in a direction that intersects a first direction of a fixing portion (col. 5, lines 31-35 and Fig. 6).

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize a communication passage including portions that extend in different directions, such as taught by Dowell et al., into the invention of Sugata as modified by Perez et al. The motivation for doing so, as taught by Dowell et al., is to allow air outside of the cartridge to flow into the cartridge while limiting loss of water vapor (col. 5, lines 31-35).

Regarding claim 9:

Sugata as modified by Perez et al. disclose all claimed limitations except that the communication passage is in the form of a labyrinth having at least one bent portion.

However, Dowell et al. disclose a communication (labyrinth 46) that is in the form of a labyrinth having at least one bent portion (Fig. 6).

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugata as modified by Perez et al., as applied to claim 6 above, and further in view of Perkins et al. (US 67158853).

Regarding claim 7:

Perez et al. also disclose that the fixing portion (66) has a first dimension as measured in the first direction (obvious to chassis 58), a second dimension as measured in the second direction (obvious to chassis 58), and a third dimension as measured in a third direction which is perpendicular to the first direction and the second direction (obvious to chassis 58).

Sugata as modified by Perez et al. do not expressly disclose that the third dimension is larger than the first dimension and the second dimension.

However, Perkins et al. disclose a fixing portion (fitting 18) that has a third dimension that is larger than the first and second dimensions (Fig. 2).

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At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize the dimension of Perkins et al.'s fixing portion into the invention of Sugata as modified by Perez et al. The motivation for doing so, as taught by Perkins et al., is to provide a leak-proof seal between the bag and the fitting (col. 2, lines 36-40).

Regarding claim 8:

Perkins et al. also disclose that the second dimension of the fixing portion gradually decreases toward opposite ends thereof in the third direction (Fig. 2).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugata as modified by Perez et al. and Dowell et al., as applied to claim 9 above, and further in view of Perkins et al. (US67158853).

Regarding claim 12:

Sugata as modified by Perez et al. and Dowell et al. disclose all claimed limitations except that the fixing portion includes a plurality of elongate ribs formed on the outer surface thereof and at least one groove, each of which is located between adjacent two of the plurality of elongate ribs, at least one of the plurality of elongate ribs being formed with an elongate cutout such that the elongate cutout extends in a longitudinal direction of the at least one of the plurality of elongate ribs, and with two grooves extending from longitudinal opposite ends of the elongate cutout to one and the other of opposite side surfaces of the at least one of the plurality of elongate ribs, respectively.

However, Perkins et al. disclose that a fixing portion (fitting 18) that includes a plurality of elongate ribs (ribs 28) formed on the outer surface thereof (Fig. 2) and at least one groove (the sections between adjacent ribs 28), each of which is located between adjacent two of the

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plurality of ribs (Fig. 2), at least one of the plurality of elongate ribs being formed with an elongate cutout such that the elongate cutout extends in a longitudinal direction of the at least one of the plurality of elongate ribs (Fig. 2), and with two grooves extending from longitudinal opposite ends of the elongate cutout to one and the other of opposite side surfaces of the at least one of the plurality of elongate ribs, respectively (the ribs 28, and consequently the grooves, extend across the length of the fitting 18 as shown in Fig. 2).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugata as modified by Perez et al., as applied to claim 1 above, and further in view of Presnick (US 3730240).

Regarding claim 15:

Sugata as modified by Perez et al. disclose all claimed limitations except that the first space is in a state, upon shipment of the ink cartridge, in which the first space is evacuated to a reduced pressure, the ink cartridge further comprising a sealing member which is removably provided so as to close the communication passage.

However, Presnick discloses an ink cartridge in which, upon shipment of the ink cartridge, a first space is evacuated to a reduced pressure (col. 2, lines 35-38), the ink cartridge further comprising a sealing member (stopper member 15') which is removably provided so as to close the communication passage (col. 2, lines 41-44 and Fig. 1).

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize a reduced pressure space, such as taught by Presnick, into the invention of Sugata as modified by Perez et al. The motivation for doing so, as taught by Presnick, is to utilize the insulating characteristics of dead air space during shipment (col. 1, lines 12-16).

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugata (US 6874878 B2) in view of Perez et al. (US 6074050) and Presnick (US 3730240).

Regarding claim 23:

Sugata discloses an ink cartridge comprising:

an ink accommodating bag (pack 352) in which ink is accommodated (col. 8, lines 19-20, 50-56) and which is formed of a first flexible sheet (col. 5, lines 35-37);

an outer bag (pack 351) which is formed of a second flexible sheet (col. 5, lines 49-52) and which encloses the ink accommodating bag such that a first space is defined by and between the ink accommodating bag and the outer bag (Fig. 7);

an ink delivering member (pipes 351a and 352a in Fig. 7);

a rigid casing (case 358) which encloses the outer bag and the ink accommodating bag such that a second space is defined by and between the outer bag and the rigid casing and which holds the ink delivering member (Fig. 7); and

wherein the ink delivering member further includes an ink outlet passage (pipe 352a) through which the ink in the ink accommodating bag is delivered to an exterior of the ink cartridge (col. 8, lines 27-31).

Sugata does not expressly disclose an ink delivering member that includes a fixing portion to which the outer bag is fixed at an opening thereof and an extending portion which is formed adjacent to the fixing portion so as to extend toward an inside of the outer bag in a first direction of the fixing portion and to which the ink accommodating bag is fixed at an opening thereof; wherein the first space is in a state, upon shipment of the ink cartridge, in which the first space is evacuated to a reduced pressure.

However, **Perez et al.** disclose an ink delivering member (chassis 58) that includes a fixing portion (e.g. vessel sealing surface 66) and an extending portion (bag sealing surface 64) which is formed adjacent to the fixing portion so as to extend toward an inside of the outer bag in a first direction of the fixing portion (Fig. 4A) and to which the ink accommodating bag is fixed at an opening thereof (col. 4, lines 13-15 and Fig. 3A); and

Presnick discloses an ink cartridge in which, upon shipment of the ink cartridge, a first space is evacuated to a reduced pressure (col. 2, lines 35-38).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize an ink delivering member with a fixing portion to which the outer bag is fixed and an extending portion, such as taught by **Perez et al.**, and to utilize a reduced pressure space, such as taught by **Presnick**, into the invention of **Sugata**. One motivation for utilizing the ink delivering member, as taught by **Perez et al.**, is to provide fluid communication between the fluid outlet and the collapsible reservoir (col. 4, lines 4-6). One motivation for utilizing a reduced pressure space, as taught by **Presnick**, is to utilize the insulating characteristics of dead air space during shipment (col. 1, lines 12-16).

Regarding claim 24:

Sugata also discloses that the first and second flexible sheets are made of vinyl (col. 5, lines 35-37, 49-52); and **Perez et al.** also disclose that the ink delivering member is more rigid than the ink bag (col. 4, lines 16-27 shows an O-ring placed between the pressure vessel and chassis, which requires these elements to be highly rigid materials so that the O-ring obtains a proper seal); therefore, the combination discloses an ink delivering member that is more rigid than the first and second flexible sheets.

Allowable Subject Matter

Claims 3, 10, and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 3 contains allowable subject matter since the prior art of record does not teach an ink cartridge comprising an ink delivering member that has at least one elongate groove which is formed in the outer surface of the fixing portion, wherein the elongate groove forms at least a portion of the communication passage in the state in which the outer bag is fixed to the outer surface of the fixing portion. It is these limitations, in combination with other features and limitations of claim 3, which makes this claim allowable over the prior art of record.

Claim 10 contains allowable subject matter since the prior art of record does not teach an ink cartridge comprising an ink delivering member that has a communication passage in the form of a labyrinth wherein the labyrinth includes at least two elongate grooves which extend in a direction that intersects the first direction of the fixing portion substantially at right angles and which are connected at corresponding ones of opposite longitudinal end portions thereof by a connecting groove. It is these limitations, in combination with other features and limitations of claim 10, which makes this claim allowable over the prior art of record.

Claim 11 contains allowable subject matter since the prior art of record does not teach an ink cartridge comprising an ink delivering member that has a communication passage in the form of a labyrinth wherein the labyrinth includes at least three elongate grooves which extend in a direction intersecting the first direction of the fixing portion substantially at a right angle, a second one of the grooves being connected, by a first connecting groove, at one of longitudinal

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opposite end portions thereof to a corresponding longitudinal end portion of a first one of the at least three grooves while the second one of the at least three grooves is connected, by a second connecting groove, at the other of the longitudinal opposite end portions thereof to a corresponding longitudinal end portion of a third one of the at least three grooves. It is these limitations, in combination with other features and limitations of claim 11, which makes this claim allowable over the prior art of record.

Examiner notes that the Dowell et al. '545 reference discloses a fluid interconnect plate that comprises a labyrinth 46. While this reference does provide motivation for using a labyrinth in any such fluid interconnect plate, there no such motivation to provide the structural limitations of communication passage set forth in claims 3, 10, and 11.

Response to Arguments

Applicant's arguments with respect to claims 1 and 23 have been considered but are moot in view of the new ground(s) of rejection. Please see the above combinations of Sugata as modified by Perez et al., and Sugata as modified by Perez et al. and Presnick. These obvious combinations disclose the inventions claimed in claims 1 and 23, respectively.

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Communication with the USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shelby Fidler whose telephone number is (571) 272-8455. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shelby Z. Fidler 5/10/07

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